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Determinants of Cross-Sectional Variation in Discount Rates, Growth Rates, and Exit Cap Rates

Authors:
Åke GUNNELIN - Stockholm Institute for Financial Research
Patric H. HENDERSHOTT - University of Aberdeen
Martin HOESLI - HEC-University of Geneva, FAME, and University of Aberdeen (School of Business)
Bo SÖDERBERG - Royal Institute of Technology, Stockholm

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Abstract:
This study investigates the determinants of key input variables in valuers' DCF models used for estimating market values for offices. Data from 599 valuations in 2000 from Stockholm, Gothenburg and Malmö are used to explain variation in discount rates, expected growth rates in net operating income and exit cap rates. Our ability to explain the relatively wide variation in appraisal assumptions with plausible co-variates generates confidence in the appraisal process. This has important implications because most value and returns indices of commercial real estate world-wide are appraisal-based.

Executive Summary:
Most property value series are based on appraisals (NCREIF in U.S., BOMA in Australia, IPD in U.K., Sweden and elsewhere). And these series, along with rent and vacancy rate data, are the basis of most property market analysis and research. Thus how reasonably appraisers perform these valuations is of great importance.

Valuation methods vary by country. For the seven European countries for which IPD collected data in 2001, only two, Sweden and the Netherlands, obtained more than ten percent of valuations by DCF calculations. The percentage was a full 95 in Sweden. Valuers using a DCF valuation method must specify three inputs before determining value: a discount rate for cash flows, an expected growth rate in cash flow between the present and an assumed future sales date, and an exit capitalization rate for this date. Using data from the 2000 SFI/IPD Swedish Property Databank, we examine 599 office market properties in Stockholm, Gothenburg and Malmö. We explain variation in the discount rates, expected NOI growth rates (computed internally) and exit cap rates valuers use in their valuations.

Discount rates tend to be about three-quarters of a percentage point higher outside cities relative to inside cities for all three Swedish metropolitan areas, presumably reflecting greater perceived risk. Within the three cities, rates are lower for properties with higher market rents per square meter (higher quality buildings are less risky), are higher for those properties with higher long run vacancy rates (and thus greater risk), and are higher for properties with land leases than without land leases.

Exit cap rates are strongly related to (real) discount rates and are about a quarter percentage point higher outside cities than inside. While they are undoubtedly related to expected (real) growth in NOI in the future, they are not related to growth prior to the exit date. Expected NOI growth is strongly related to deviations between actual and market rents (below market leases will roll over at higher rates) and between actual and long-run vacancy rates (empty buildings will fill up). One sometimes gets the impression that the valuation process is quite mechanical: the valuation profession settles on a growth scenario, selects a discount rate, and cranks out values. If the capitalization method is employed, there isn't even much cranking. Our data and analysis suggest this is a quite misleading picture. First, the variation in inputs (growth and discount rates and current and exit cap rates) is much wider than we had expected. Second, a reasonable amount of this variation can be explained with quite plausible variables. Swedish appraisers do not simply mimic each other.